INTERSECTION OF HENLEY BVD & WELLARD RD, WELLARD
PRELIMINARY TREE REPORT

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1 PURPOSE OF THIS REPORT

- To undertake an Arboricultural inspection of the trees in proximity the proposed round-a-bout of Henley Boulevard & Wellard Road in Wellard (outlined red in figure 1); and identify preliminary tree protection considerations to be further developed as part of the proposed construction for the site.

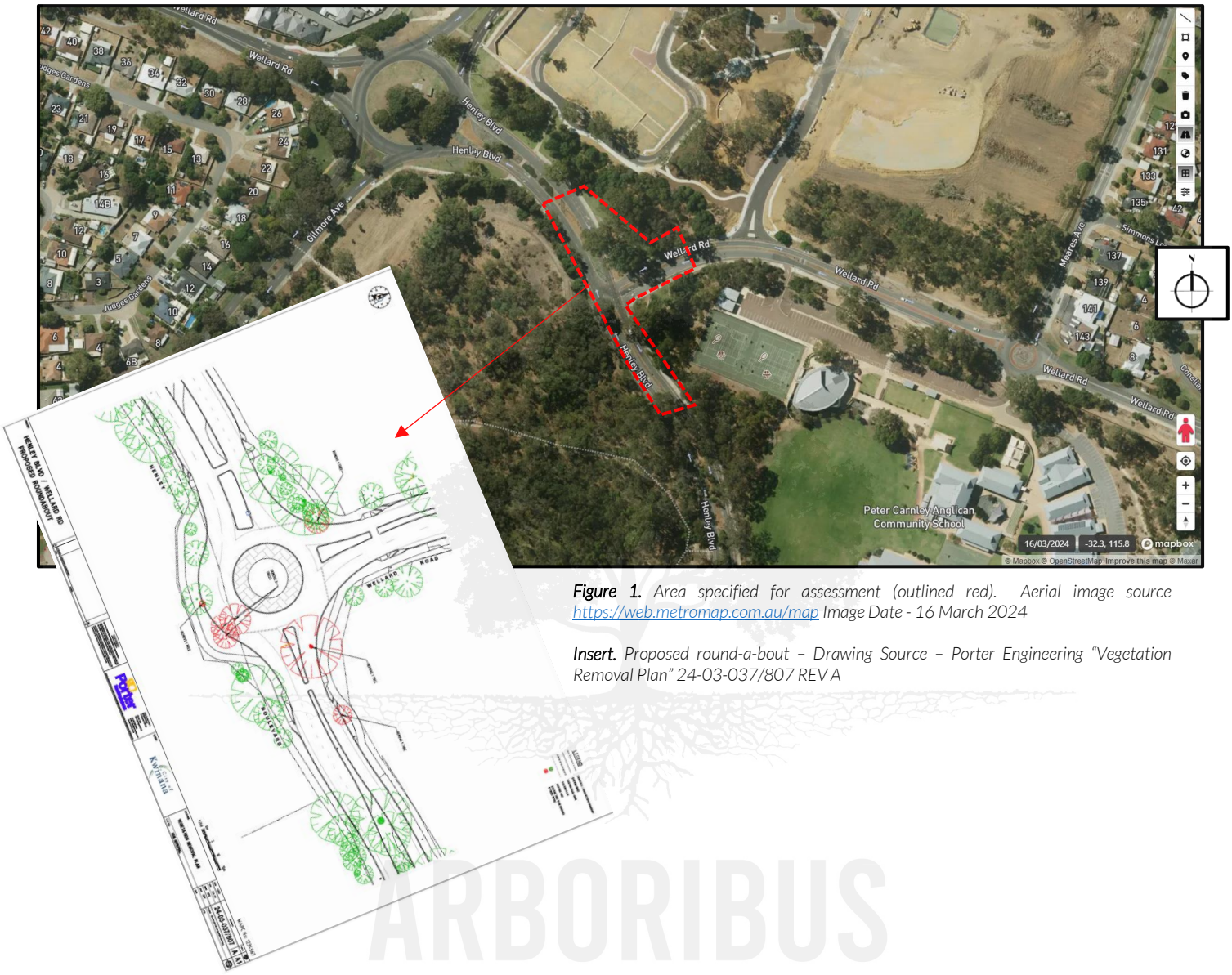

Figure 1. *Area specified for assessment (outlined red). Aerial image source https://web.metromap.com.au/map Image Date - 16 March 2024*

Insert. *Proposed round-a-bout – Drawing Source – Porter Engineering "Vegetation Removal Plan" 24-03-037/807 REV A*

2 BACKGROUND

2.1 BRIEF

- At the request of Evan Williams (Porter Engineering Director Traffic and Transport), Arboribus Consulting has been engaged to visually assess x44 trees within the boundary as specified in Figure 1 and provide the following information:
    - Individually number and install aluminium numbered tags to each tree.
    - Identify genus, species and common name.
    - Comment on current health, structure & age of the subject trees.
    - Obtain height, canopy spread and trunk diameter measurement(s).
    - Provide Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) measurements
    - Detail observations and comments for each tree.
    - Ascertain trees identified for removal (by others).
    - Provide background information regarding the Australian Standard AS 4970 '*Protection of Trees on Development Sites'* 2009 (refer Appendix C) and identify preliminary tree protection considerations to be further developed as part of the proposed works.
    - Conclusions and Recommendations.

2.2 SUPPLIED PROJECT DRAWINGS

- Drawing package supplied to Arboribus Consulting included:
    - Porter Engineering Drawing 'Vegetation Removal Plan' No. 24-03-037/807A
    - Porter Engineering Drawing 'RoundaBout Layout – Option 2' No. 24-03-037/802A
- Refer *Appendix D Supplied Project Drawings* for detail.

2.3 ARBORICULTURAL INSPECTION

- Arboribus Consulting undertook a ground level assessment of the x44 trees on 5 August 2024.

2.4 LIMITATIONS OF THIS REPORT

- Tree retention concepts for the Henley Boulevard & Wellard Road Round-a-bout construction have been developed (by others) prior to the engagement of Arboribus Consulting. Refer *Appendix E – Supplied Drawings* for detail.
- Comments made by Arboribus Consulting are based on proposed designs and; trees identified (by others) for retention and incorporation into the project. Modification to proposed designs and; the development of appropriate work methodologies will be required in order to address issues raised within this report to ensure root and canopy impact can be minimised for trees identified for retention into the project.

- The information contained within this report is preliminary in nature and is not intended to be used as an 'Arboricultural Impact Assessment' (AIA) or; 'Arboricultural Method Statement (AMS)' for the proposed development. Further inputs will be required from an AQF Level 5 Arborist, to review designs and develop a site-specific AIA & AMS in keeping with Australian Standard AS 4970 '*Protection of Trees on Development Sites*' 2009 for implementation by contractor(s) nominated for any proposed construction works.
- The Arboricultural assessment was undertaken at ground level and did not incorporate any aerial or below ground inspections; any invasive, diagnostic, laboratory testing and/or specialist investigations for the subject trees.
- Arboribus Consulting acknowledges that the information provided in this report is based on conditions and facts as they exist at the date of the report. Any subsequent revisions or updates requested after the date of this report will be considered new services and; will be subject to additional fees, which will be agreed upon by both parties prior to undertaking such revisions.

3 SUMMARY OF FINDINGS

3.1 TOTAL NUMBER OF TREES INSPECTED

- A total of x44 trees were assessed at the proposed intersection of Henley Boulevard & Wellard Road in Wellard, - refer *Appendix A Tree Location, ID Numbering & TPZ Map & Appendix B Table of Results* for detail.
- To assist with on ground identification, the assessed trees have aluminium number tags installed on main stems at approximately 1.5 meters from ground level– refer figure 2 for example of tags utilised for the project.

Figure 2. Showing metal tree tag and numbering of the identified trees installed approx. 1.5 meters from ground level

3.2 TREE SPECIES INSPECTED

- Of the x trees assessed, the following was documented:
  - *Eucalyptus species* (Eucalypt) x 17
  - *Corymbia species* (Bloodwood) x 17
  - *Brachychiton species* (Brachychiton) x 8
  - *Callistemon 'Kings Park Special' (King's Park Special Bottlebrush) x 1*
  - *Acacia saligna* (Golden wreath Wattle) x 1
- All of the assessed trees are considered well suited to the Wellard locale.

3.3 AGE STATUS

- Synopsis of general age status for the assessed trees was broken down into the following:
  - Juvenile = x 0

- Semi Mature = x 3
- Early Mature = x 21
- Mature = x 20
- Post Mature = x 0

3.4 ESTIMATED LIFE EXPECTANCY (ELE)

- Synopsis of Estimated Life Expectancy (ELE) for the assessed trees was broken down into the following:
  - Dead (no chance of recovery) = x 5
  - <5 Years = x 2
  - 5 - 15 Years = x 2
  - 15 – 40 Years = x 13
  - 40 + Years = x 22

3.5 SUMMARY OF CANOPY HEALTH

- Synopsis of canopy health for the assessed trees was broken down into the following:
  - Good = x 27
  - Reasonable = x 9
  - Questionable = x 2
  - Poor = x 1
  - Dead (no chance of recovery) = x 5

  Refer Appendix B Definitions Canopy Health for detail.
- The majority of trees assessed were considered to be in Good or Reasonable health status. Various (minor) health issues identified are considered manageable within the scope of general horticultural management being undertaken for the site.
- 3x Trees (Tag numbers A00519, A00550 & A00553) displayed Questionable or Poor health status. If identified for retention, these trees will require specific Arboricultural input and/or targeted remedial treatments to improve general health status - refer *Appendix B Table of Results* for detail.

3.6 SUMMARY OF CANOPY STRUCTURE

- Synopsis of individual canopy structure for the assessed trees was broken down into the following:
  - Good = x 17
  - Reasonable = x 14
  - Questionable = x 13
  - Poor = x 0

  Refer Appendix B Definitions Canopy Structure for detail.

- The Majority of trees assessed displayed Good or Reasonable canopy structure. A number of minor structural problems were identified; however, are considered manageable as part of general tree pruning maintenance responsibilities being undertaken for the site.
- 13x Trees (Tag numbers A00512, A00513, A00519, A00520, A00521, A00531, A00532, A00536, A00538, A00541, A00546, A00548 & A00553) Trees displayed Questionable structural status. If identified for retention, these trees will require specific Arboricultural input and/or targeted remedial treatments to improve general health status - refer *Appendix B Table of Results* for detail.

3.7 PEST AND DISEASES

- Termite mud was noted on the main stems of trees A00535, A00537 & A00548 at time of inspection. If identified for retention, consideration should be given to the installation of non-invasive termite baiting & monitoring systems for the subject trees.
- Aside the noted Termite mud, no obvious visual presence of any significant pest infestation or fungal sporophores were observed at the time of assessment.

3.8 SUMMARY OF PRELIMINARY RECOMMENDATIONS

- Tree Tags A00519, A00520, A00521, A00546, A00552 & A00553 have been identified for removal and identified on Porter Engineering Drawing *'Vegetation Removal Plan' 24-03-037/807A– Refer Appendix D Supplied Project Drawings for detail.*
- 9x Trees (Tag Numbers A00512, A00513, A00531, A00532, A00536, A00538, A00541, A00548 & A00550) have been identified as requiring further Arboricultural Input and/or assessment regarding specific health or structural issues. Further consideration of identified issues is required before making a definitive conclusion on their incorporation into the project.
- The remainder of the 29x trees assessed could be considered for retention.
  A site specific 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' is to be developed by an AQF Level 5 Project Arborist in keeping with AS 4970-2009 for trees identified for retention and incorporation into the project.

3.9 CANOPY PRUNING FOR THE PROPOSED DEVELOPMENT

- Canopy pruning may be required to improve clearances to working areas and for equipment access and egress as part of the proposed Round-a-Bout at Henley Boulevard & Wellard Road in Wellard.
- Canopy pruning works are to be:
  - Approved by the nominated AQF level 5 Project Arborist (in collaboration with the Project team)
  - Undertaken in keeping with Australian Standard AS 4373 *'Pruning of Amenity Trees'* 2007 and;
  - Undertaken by suitably qualified and experienced AQF 3 Arborists.

- Aerial inspections are to be undertaken throughout canopies by the nominated pruning contractor to identify structural issues not able to be seen from the ground level inspection and further recommendations made as and where required by the nominated AQF level 5 Arborist.

3.10 SALVAGING OF TREES & TIMBER

- Where the design is not compatible and existing trees are required to be removed as part of the project, the following could be considered:
    - Milling of timber into slabs for furniture or features for integration into the design
    - Crafting or turning wood into features/items/furniture/art interpretive sculpture etc by woodturners, craftsmen or artists
    - Consideration could be given to using the brush and logs as bank or ground stabilisation for regeneration works or habitat creation in nearby bush or open space areas
    - Consideration could be given to harvesting of the seed and germinate from existing source as ceremonial replanting once construction has been completed. Any tree stock proposed for this type of approach are to be grown in accordance with the processes identified in the Australian Standards AS 2303 '*Tree Stock for Landscape Use*' 2018 and planted in accordance with best industry practice.

4 TREES OF NOTE

Figure 3. Aerial image source https://web.metromap.com.au/map Image Date - 16 March 2024 Geographic Information System (GIS) via QGIS http://www.qgis.org

5 PRELIMINARY ARBORICULTURAL INPUTS FOR THE DESIGN

Figure 4. Image showing TPZ delineations (Red dashed lined) & SRZ delineations (Aqua dashed lined) . Please note: The location of the trees and TPZ & SRZ are indicative and for reference purposes only. Aerial image source https://web.metromap.com.au/map Image Date - 16 March 2024 Geographic Information System (GIS) via QGIS http://www.qgis.org

5.1 TREE PROTECTION ZONE (TPZ) BACKGROUND AND OVERVIEW

- Tree Protection Zone (TPZ) is defined in AS4970 *'Protection of Trees on Development Sites 2009' as*:

  "A specified area above and below ground and at a given distance from the trunk set aside for the protection of a trees roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development."
- To calculate a TPZ, the formula 12 times (x) the Trunk Diameter is utilised (for the majority of tree species and types).
- The TPZ is measured in meters as a radius from the centre of the main stem – refer Figure 4 & Appendix A & B for further detail.
- ***Special Note:*** *the TPZ is not the canopy diameter; canopy width; drip-line measurement and/or Structural Root Zone (SRZ) calculation. Canopy measurements/SRZ radii are not to be used as the AS4970 nominal Tree Protection Zones.*
- Refer *Appendix B* for TPZ radius measurements for each of the assessed trees.

5.2 TPZ INCURSIONS - BACKGROUND INFORMATION

- Tree protection measures in keeping with AS 4970 *'Protection of Trees on development sites'* 2009' must be incorporated into the proposed design in order to achieve tree sensitive outcomes for the project.

- The Design team is to review all proposed works that extend into Tree Protection Zones (TPZs) and make all efforts to relocate or divert any proposed works or structures within these specific TPZ areas. Where this isn't possible/practical further inputs from the nominated AQF Level 5 Project Arborist will be necessary.
- Where minor encroachments into a Tree Protection Zone (TPZ) are planned, input from an AQF level 5 Arborist will be required to review proposed works or structures; provide tree sensitive measures or alternatives and; assist in the development of appropriate methodologies to ensure tree root and canopy impact can be minimised.
- Where significant incursions are proposed within TPZs (i.e., greater than 10%), an AQF level 5 Arborist is to demonstrate how the encroachment or works can occur without adversely impacting the health and/or inground stability of the tree or; identify where modifications to the design or alternative methodologies are required.

5.3 ARBORICULTURAL COMMENT FOR PROPOSED DESIGNS

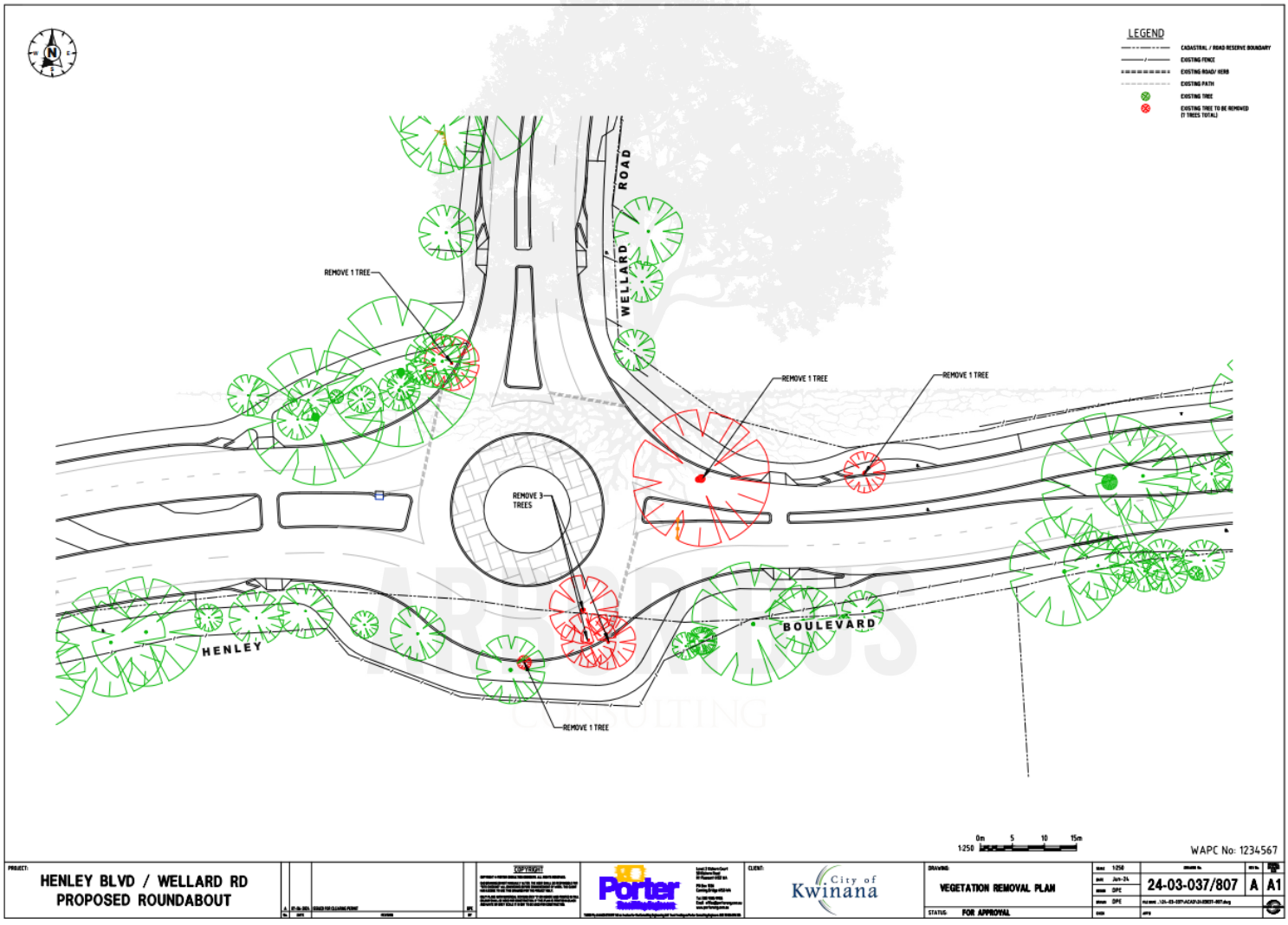

Figure 5. Proposed Round-a-Bout construction at Henley Blvd & Wellard Rd - Porter Engineering Drawing 'Vegetation Removal Plan' No. 24-03-037/807A

5.3.1 POTENTIAL CONSTRUCTION WORKS WITHIN TREE PROTECTION ZONES

- Any construction or works being proposed within Tree Protection Zones (TPZs) will necessitate modification to the proposed design and; the development of appropriate work methodologies in order to alleviate unnecessary/avoidable impacts to the trees identified for retention. Works include (but may not be limited to):
    - Establishment of site and works boundaries
    - Dismantling of trees identified for removal
    - Establishment of the specified Tree Protection Zones (TPZs)
    - Access & Egress points, laydown/storage areas/parking for machinery and vehicles etc..
    - Decommissioning of existing below ground services and associated infrastructure
    - Demolition and removal of existing road infrastructure/hard stand areas/bitumen & subbase/ crossovers/kerbing/paving/fences etc..
    - Storage of spoil and materials
    - Forward works; Cut to fill works & site preparation to set levels, batters and soil contours, removal of organic layers etc...
    - All civils & road construction works
    - Installation of roadway/carpark and kerb areas (i.e. preparation for levels, installation of subbase (and aggregate), bitumen and kerbing, dual use pedestrian path etc..)
    - Installation of bump stop kerbs
    - Installation of proposed below ground services (and their associated infrastructure and components & take off/tie in points) including but may not be limited to: electrical, water, gas, hydrant, communications, sewer, bores, stormwater/drainage systems etc…
    - Installation of new hardstand, bitumen, paving, concrete, path & kerb areas (i.e. preparation for levels, boxing out, installation of subbase and compaction etc..)
    - Hard and Soft landscaping (i.e.. levels and contouring, structures, planting of vegetation, new irrigation, mulching, soiling etc).

5.3.2 MODIFICATIONS TO BE INCORPORATED INTO DESIGNS, DRAWINGS & WORKS

- Modification of existing soil levels is to be avoided within TPZ areas. Moderate raising of soil levels may be considered (refer below dot point) within/adjacent the TPZ areas as an alternative to cutting, lowering, and/or boxing out existing levels. Any proposed grade cuts that may be required, can injure arterial/surface roots and will need to be addressed to limit root loss and associated impact to the trees identified for retention.
- Where fill is being proposed within TPZs, washed and screened single grade gravel or aggregate with no fines is recommended to be used (*Note: any required areas of fill to be installed greater than 150 mm within TPZs will be subject to prior approval from the nominated AQF level 5 Arborist and the installation of remediation measures (or materials) to assist with aeration and infiltration within TPZs).*

- Roadway/carpark, crossovers, kerbs, retaining walls, dual use pedestrian path, ramps etc.. being proposed within TPZs should be tree sensitive and designed to 'float' (i.e., installed on top of existing ground levels) to limit box outs and root impacts and allow root mass to be retained beneath roadways and paths.
- Alignments and locations of any below ground services proposed to travel within/through TPZs are to be installed via non-destructive methods (i.e. micro tunnel, directional drill or industrial soil vacuum/hand dug and monitored by the nominated AQF level 5 Arborist) and adjusted to accommodate roots.
    - *Note 1: Mechanical excavation (i.e. excavator, bobcat etc) is not permitted within TPZs.*
    - *Note 2: Where approved by the nominated AQF level 5 Arborist, roots shall be pruned appropriately by the nominated contractor and works monitored by the nominated AQF level 5 Arborist.*
- All proposed structures/infrastructure or construction to be established within TPZs are to be installed via non-destructive methods (i.e., industrial soil vacuum monitored by the nominated AQF level 5 Arborist) *Note: Mechanical excavation (i.e. excavator, bobcat etc) is not permitted within TPZs.*
    - Any footings or hardscape structures proposed within TPZs are to:
        - Avoid significant roots and
        - Be root sensitive and minimised – i.e. screw piles (Krinner ground screws or equivalent) to be considered and/or;
        - Be designed to 'float' (i.e., installed on top of existing ground levels) and/or;
        - Lintels designed and installed to protect and bridge over the roots to allow for their retention.

  Where this may be impractical/cost prohibitive, rootzone investigations are to be undertaken via non-destructive methods (i.e., industrial soil vacuum monitored by the nominated AQF level 5 Arborist) to locate and accommodate roots greater than 30 mm in diameter. This may require any footings or structures to be located/poured/positioned at locations where no large roots are encountered and achieve a tree sensitive outcome.

5.3.3 PROPOSED METHODOLOGIES FOR WORKS IN TPZS

- Prior to any works on site, erection of dedicated TPZ fencing (and TPZ signage), is to identify the nominal TPZ delineations and are to be established by the nominated contractor and; signed off by an AQF level 5 Project Arborist prior to site works (refer Appendix C for detail) *Note:- Any alteration or modification of the fencing is to be approved prior by the nominated AQF level 5 Project Arborist and documented as part of ongoing tree preservation reporting for the site.*
- Any works proposed within the nominal TPZ delineations will require prior approval from an AQF level 5 Project Arborist and; works be monitored by the Project Arborist.

- Dismantling of trees is to be undertaken such that no damage occurs to the canopies and/or root systems of the trees identified for retention. Stumps are to be ground out only ***Note:*** *Mechanical excavation/grubbing out of stumps is not permitted within TPZs.*
- Any canopy pruning works are to be approved by an AQF level 5 Project Arborist (in collaboration with the Project team); undertaken in keeping with Australian Standard AS 4373 *'Pruning of Amenity Trees'* 2007 by suitably qualified and experienced AQF 3 Arborists under the guidance of an AQF level 5 Project Arborist.
- Demolition works are to be approved prior and; monitored by an AQF level 5 Project Arborist such that roots are protected and retained within TPZs.
- Positioning of machinery is to recognise the TPZ delineations to limit impacts to root systems and avoid collision impacts to trunks and canopies. Types of machinery, working room and swing radius will need to be considered to ensure tree damage is avoided. Any Mechanical tracking in TPZs will require prior approval from an AQF level 5 Project Arborist and may need to facilitate the installation of ground protection measures. Access and egress and; screwing of tracks within TPZs is to be minimised.
- Alignments and locations of any proposed below ground service, excavations, irrigation and associated infrastructure that travel within/through TPZs, are to be redirected beyond or; installed via non-destructive methods (i.e. micro tunnel, directional drill or industrial soil vacuum monitored by an AQF level 5 Project Arborist) and adjusted to avoid/accommodate roots greater than 30 mm in diameter. ***Note:*** *Mechanical excavation is not permitted within TPZs.*
- Take off and/or tie in points designed within TPZs are to be installed via non-destructive installation methods (industrial soil vacuum and monitored by an AQF level 5 Project Arborist) and shall be adjusted to avoid/accommodate roots greater than 30 mm in diameter. ***Note:*** *Mechanical excavation is not permitted within TPZs.*
- Where excavations are proposed in close proximity to or may impact TPZs, installation of Box shoring, shutter boards, piling or utilisation of jet grouting (grout injection) may be necessary to limit soil slippage and undermining of root systems. These measures are to be approved prior to their installation by the AQF Level 5 Project Arborist.
- Storage of spoil in TPZs will require prior approval from an AQF level 5 Project Arborist and may need to facilitate prior installation of ground protection measures.
- Any tree stock proposed for planting, are to be grown in keeping with the processes identified in the Australian Standards AS 2303 *'Tree Stock for Landscape Use' 2018* and planted in accordance with industry best practice. Consideration will need to be given to the proposed planting areas and suitable tree species selection able to thrive appropriately (both above and below ground) in each given circumstance proposed.
- Planting/replanting of any vegetation within TPZs is to be undertaken that planting holes are strategically placed to avoid any tree roots greater than 30 mm in diameter.

5.3.4 OTHER TPZ ISSUES TO BE CONSIDERED FOR THE PROJECT

- Other site issues that may impact or encroach the specified TPZs, are to be recognised and addressed as part of site works. It is recommended that the matters below avoid the specified protection zone delineations of the trees. Where this isn't achievable, ground protection measures are to be installed prior. Matters include (but may not be limited to):
    - Location of site offices and amenities
    - Dedicated access and egress points (needs consideration for the site as a whole)
    - Parking/storage of vehicles and machinery
    - Lay down areas and storage of construction materials
    - Or any other activity that may compromise tree health or structure not identified above.
- Consideration will need to be given to the timing of the proposed works and the impacts that may arise during seasonal weather extremes i.e. avoiding the heat of summer and scheduling works and planting in the cooler months of autumn and early winter (if possible) to limit unnecessary stress to the vegetation.
- To help maintain health displays and offset impacts sustained during the works, regular supplementary watering (rates and frequencies to be advised by the Project Arborist) and fortnightly applications of liquid wetting agent & organic soil drench, will need to be accommodated during the works phase. These applications are to be applied evenly within the TPZs of all trees identified for retention.
- Ongoing Arboricultural assessment and inputs will be required for the project to gauge tree response and address health and or structural issue that may arise prior to, during and post completion of the proposed development of Henley Boulevard & Wellard Road in Wellard.

6 CONCLUSIONS

- 6x trees have been identified for removal as part of the proposed works – refer Appendix A , B & E for detail.

  9x Trees have been identified as requiring further Arboricultural Input and/or assessment regarding specific health or structural issues. Further input and consideration of the identified issues are required before making a definitive conclusion on their incorporation into the proposed Round-a-bout construction– refer Appendix A & B for detail.

  The remainder of the 29x trees assessed should be considered for retention and that site-specific 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' be developed by an AQF 5 Project Arborist in accordance with AS 4970-2009 and implemented for the duration of the proposed development.

  For trees that are identified for retention with Termite Mud noted on main stems at the time of inspection, consideration should be given to the installation of non-invasive termite baiting & monitoring systems for the subject trees.

- As part of the proposed development of Henley Boulevard & Wellard Road in Wellard, it will be imperative that drawings and plans include: the accurate location of all trees assessed; their allocated tree tag numbers and individual TPZ & SRZ measurements of trees identified for retention. Including this information into all project plans and drawings will limit confusion on site; and; will ensure the correct trees are retained and protected as part of the proposed development.

- Consideration needs to be given to the sensitivity of some tree species and their lack of tolerance to close proximity rootzone disturbance (and subsequent root impact) that is common with urban developments and typical construction methods.

  Tree protection measures in keeping with AS 4970 *'Protection of Trees on development sites'* 2009' must be incorporated into the proposed design and into any proposed works methodologies in order to achieve tree sensitive outcomes for the project (refer *Point 5. Preliminary Arboricultural Inputs For the Design* for preliminary detail).

  The retention of existing ground levels; limiting encroachments within the specified TPZs and; implementing appropriate works methodologies will be important in the future success for the trees identified for incorporation. Where encroachments into a TPZ are necessary, further inputs from the nominated AQF level 5 Arborist will be required to review proposed encroachments and assist in the development of appropriate methodologies to allow works to occur in a sensitive manner.

- As part of the Tree Protection responsibilities for the project, only suitable qualified and experienced AQF level 5 Arborists should be engaged to:
  - Identify worthwhile specimens to be incorporated into the proposed development

- Develop a site-specific 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in keeping with AS 4970 *'Protection of Trees on Development Sites'* 2009
- Undertake ongoing reviews and provide Arboricultural inputs into the design; methodologies and/or proposed encroachments into TPZs of the trees
- Provide approval of any works within TPZs
- Monitor approved works within TPZs
- Approve and oversee canopy pruning works
- Monitor tree health and structure during works
- Provide ongoing reporting and assessments as and where required
- Provide sign off reporting that documents the tree status post completion of the works.

- Any canopy pruning works are to be:
  - Approved by the nominated AQF level 5 Project Arborist (in collaboration with the Project team)
  - Undertaken in keeping with Australian Standard AS 4373 *'Pruning of Amenity Trees'* 2007
  - Carried out by suitably qualified and experienced AQF 3 Arborists and;
  - Under the guidance of the nominated AQF level 5 Project Arborist.

- The nature of Arboricultural works required for the site can be expected to evolve and change over time. It is important to acknowledge that trees are dynamic, living organisms which are influenced by their above and below ground environs. Regular Arboricultural inspections are recommended to; monitor, document and respond to potential future tree changes that may require further arboricultural intervention not covered within this report.

7 RECOMMENDATIONS

7.1. That trees A00519, A00520, A00521, A00546, A00552 & A00553 be dismantled as part of the proposed development.

7.2. That Tag Numbers A00512, A00513, A00531, A00532, A00536, A00538, A00541, A00548 & A00550 require further Arboricultural discussion with an AQF level 5 Arborist regarding the identified issues before making a definitive conclusion on their retention within the proposed development of Henley Boulevard & Wellard Road in Wellard

7.3. That the remainder of the x29 trees be considered for retention and incorporated as part of the proposed construction.

7.4. (That if identified for retention), installation of non-invasive termite baiting & monitoring systems is to be implemented for trees A00535, A00537 & A00548.

7.5. That all project specific drawings include:

a. Accurate tree location
b. Tree specific numbering
c. Tree Protection Zones (TPZ) delineations of trees to be retained &
d. Structural Root Zones (SRZ) delineations of trees to be retained

Refer Appendix B for tag numbers, TPZ & SRZ projections for each tree.

7.6. Where trees have been identified for retention and incorporation into the proposed development, that appropriate refinements, design modifications and the development of tree sensitive works methodologies identified in *Point 5. Preliminary Arboricultural Inputs For the Design* are incorporated into drawings and specifications and implemented for the project. Where appropriate modification is not achievable within TPZ areas, removal of the tree may be required – subject to review and approval by the nominated AQF level 5 Project Arborist (in collaboration with The Project team).

7.7. That a site-specific 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' be developed by the nominated AQF level 5 Project Arborist for trees identified for retention. The AIA & AMS is to be in keeping with the processes identified in Australian Standards AS 4970 *'Protection of Trees on Development Sites'* 2009.

7.8. That Tree Protection Zones (TPZs) are established at the commencement of construction and are maintained for the duration of the works for all trees identified for retention (refer Appendix C for detail).

7.9. That any proposed works within the TPZs are approved, monitored & documented by an AQF 5 Project Arborist in keeping with the Australian Standards AS 4970 *'Protection of Trees on Development Sites'* 2009 & AS 4373 *'Pruning of Amenity Trees'* 2007.

7.10. Any canopy pruning works are to be approved by the nominated AQF level 5 Project Arborist; undertaken in keeping with Australian Standard AS 4373 *'Pruning of Amenity Trees'* 2007 by suitably qualified and experienced AQF 3 Arborists .

7.11. That sign off reporting be undertaken by the nominated AQF level 5 Project Arborist that documents the condition of the trees post completion of the project and that provides a maintenance schedule to implement post completion of the construction works.

7.12. That the subject trees be visually assessed by an AQF level 5 Arborist in 12 months (August 2025) or after significant weather events, to report on status and identify and respond appropriately to new or developing tree related issues.

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APPENDIX A – TREE LOCATION, ID NUMBERING & TPZ MAP

Figure 6. Tree Location & ID Numbering Map Tree Location Please note: The location of the trees are indicative and for reference purposes only. Tree Locations require validation/verification by surveyor prior to works. Aerial image source https://web.metromap.com.au/map Image Date - 16 March 2024 Geographic Information System (GIS) via QGIS http://www.qgis.org

TREE PROTECTION ZONES (TPZ) & STRUCTURAL ROOT ZONES (SRZ) PROJECTIONS

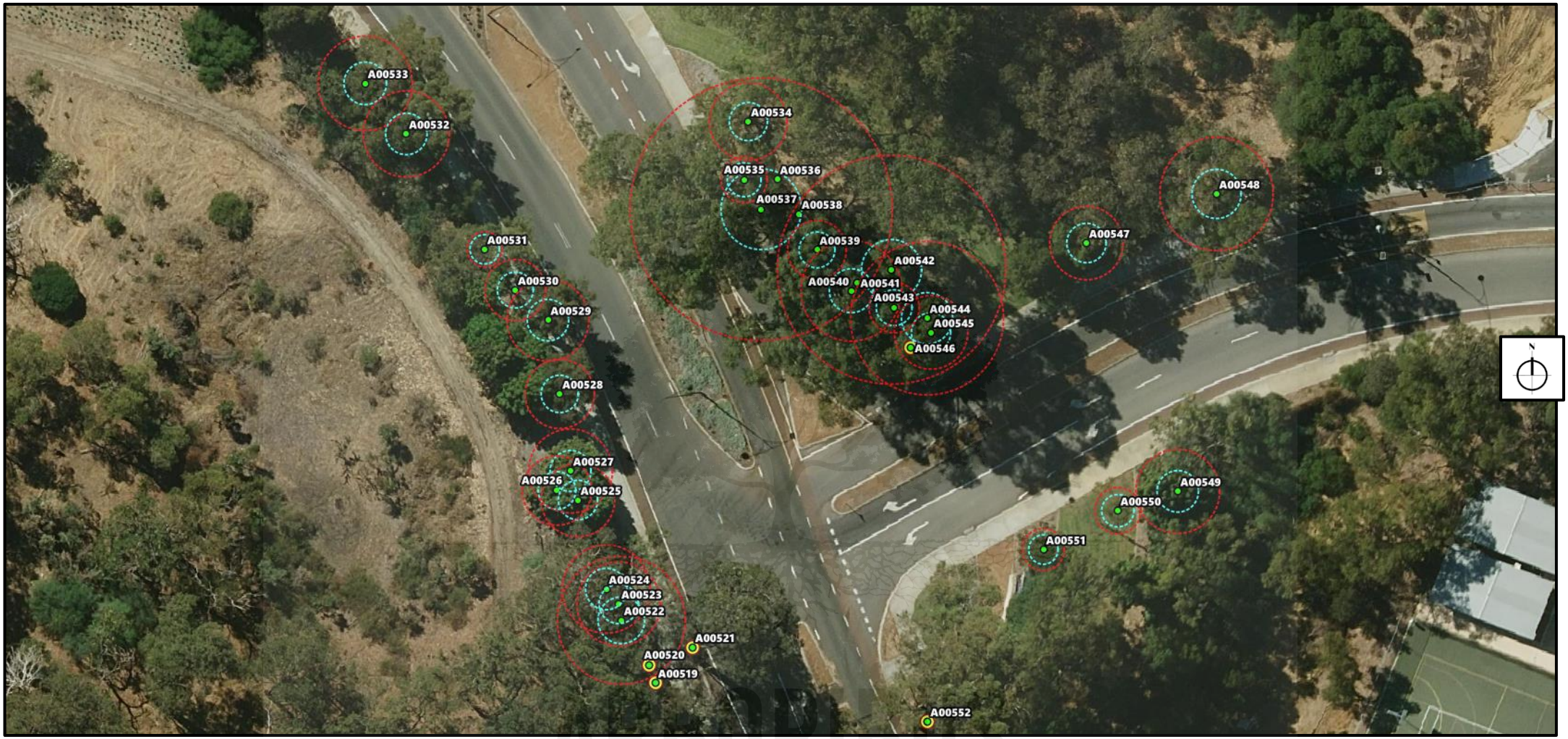

Figure 7. Image showing TPZ delineations (Red dashed lined) & SRZ delineations (Aqua dashed lined) & Trees identified for removal (yellow dot) . Please note: The location of the trees and TPZ & SRZ are indicative and for reference purposes only. Aerial image source https://web.metromap.com.au/map Image Date - 16 March 2024 Geographic Information System (GIS) via QGIS http://www.qgis.org

Figure 8. Image showing TPZ delineations (Red dashed lined) & SRZ delineations (Aqua dashed lined) & Trees identified for removal (yellow dot) . Please note: The location of the trees and TPZ & SRZ are indicative and for reference purposes only. Aerial image source https://web.metromap.com.au/map Image Date - 16 March 2024 Geographic Information System (GIS) via QGIS http://www.qgis.org

APPENDIX B – TABLE OF RESULTS & DEFINITIONS

DEFINITIONS – GENERAL

Tree ID Number	Provides Arboribus Consulting individual tag identification number.
Nomenclature & Tree Identification	Identifies the genus, species and common name for the tree.
Estimated Age	Identifies the estimated age at the time of assessment. (Juvenile, Semi Mature, Early Mature, Mature, Senescing).
Estimated Tree Height	Estimate of the Trees Height in meters.
Estimated Canopy Spread	Estimate of the Trees canopy spread in meters.
Estimated Life Expectancy (ELE)	Estimate of the trees Life Expectancy (ELE) (less than 5 Years, 5 – 15 years, 15 – 40 years, or over 40 years).
Canopy Health	Identifies the visual health display at the time of assessment. (Exceptional, Good, Reasonable, Questionable, Poor, Dead) – refer Canopy Health Definitions below for further detail.
Canopy Structure	Identifies the canopies visual structural form at the time of assessment. (Good, Reasonable, Questionable, Poor, Dead) – refer Canopy Health Definitions below for further detail.
Trunk Diameter (at 1.4m or widest point)	Measurement of trunk diameter in millimetres. Typically measured at 1.4 meters above ground level for single trunks or; measured at the widest point, multi stemmed and bifurcated trunks
Tree Protection Zone (TPZ) Radius (M)	*Calculated as: x12 Trunk Diameter measured as a radius from centre of the trunk.* *Identified in AS 4970 'Protection of Trees on Development Sites' 2009 ' as 'the area of root and canopy area requiring protection during construction so the tree remains viable. Any works proposed within this area requires approval from an AQF 5 Arborist prior to commencement.* .***Special Note:- the TPZ is not the canopy diameter; canopy width; and/or drip line measurement. Canopy measurements are not to be used as the AS4970 nominal Tree Protection Zones***
Trunk Diameter above Buttress	Measurement of trunk diameter in millimetres measured above buttress. Measurement essential for accurate calculation of Structural Root Zone (SRZ) radius
Structural Root Zone (SRZ) Radius (M)	Calculated as: Diameter at ground level x 50) ^ $^{0.42}$ x 0.64 measured as a radius from centre of the trunk. Identified in AS 4970 'Protection of Trees on Development Sites' 2009 '*as the area required for tree stability'. Special* ***Note:- the SRZ is not to be mistaken for; or utilised as a Tree Protection Zone (TPZ) refer TPZ definition above for detail.***
Comments	General information for the assessed tree.
Preliminary Recommendation	Identifies preliminary recommendations for the individual (remove, retain, or additional Arboricultural input/assessments required).

DEFINITIONS – CANOPY HEALTH

Exceptional
The tree is demonstrating exceptional growth and exhibits a full dense canopy of foliage for a specimen of the species. Leaf colouration, distribution and size are all exceptional for the species. No visual signs of any pests and/or disease impacting tree health. Seasonal growth and/or callous development is active and evident.
Good
Tree displays typical foliage size, colouration, and density for a specimen of the species. Seasonal growth and/or callous development all appear typical. Seasonal deadwood may be apparent however likely as a result of natural attrition and not an indication of reduction in the trees wellbeing. May have minor seasonal pest (or disease) issues; however, unlikely to impact general health and wellbeing.
Reasonable
Tree displays typical foliage size and colouration; however, may display a reduction in ideal growth. The tree may exhibit modest visual health issues or minor areas of concern. Canopy density may be affected or have a slightly higher percentage of deadwood than what would be considered 'typical'. Seasonal growth and/or callous development may be slightly impeded. Presence of a pest or disease may be evident. However, issues noted considered easily addressed within the scope of proactive tree management.
Questionable
Canopy starting to indicate decline. Apical/terminal sections of the canopy may be actively declining or dead. Pests or diseases may be prevalent and impacting health that require intervention. Subject tree will require a tree specific management plan to be developed to address health issues noted and/or require targeted remedial intervention(s) and/or analysis or further investigation and/or monitored on a more detailed basis.
Poor
Canopy Indicates decline. Canopy may display less than 25% live photosynthetic mass. Majority of tertiary and secondary limbs are dead or compromised. Current health condition such that significant remedial intervention is unlikely to assist in appropriate/worthwhile recovery.
Dead
Tree has no active conductive tissue - indicating no chance of recovery.

DEFINITIONS – CANOPY STRUCTURE

Good
Primary and secondary framework and Primary and secondary branch attachments (unions) display typical form for a specimen of the species. Tree exhibits no significant visual issues within the canopy; however, may display minimal/minor structural imperfections (that may be addressed within the scope of proactive tree management).
Reasonable
Tree displays reasonable canopy structural form and generally free of significant issues; however, the tree may exhibit modest visual issues, structural defects or areas of concern that may require to be addressed with remedial work or require to be monitored. This may include, minor competition/suppression issues, minor leans, codominant stems and branches, minor bark inclusions, noticeable wounding & damage, previously lopped canopies; storm damaged and/or vandalisms where epicormic regeneration has developed satisfactory branch attachment etc… However, issues can be addressed or monitored within the scope of proactive tree management.
Questionable
Primary and secondary canopy structural form displays defects, flaws or areas of concern that may lead to future issues. This could include issues that may affect structural integrity including Storm damage & previous deleterious pruning, significant asymmetry & competition issues, problematic leans, codominant stems with bark inclusions and swelling present, substantial wounding & damage, major decay, poor branch taper etc that will require to be addressed with remedial intervention; be further investigated and/or; specifically monitored in an ongoing basis.
Poor
Tree displays substantial/major structural flaws within its primary and/or secondary (or beyond) canopy structural form i.e.: extensive decay and/or hollows, broken or compromised unions, substantial splits breaks and/or fractures etc.. where remedial, Arboricultural or Engineering intervention is unlikely to improve form or substantially reduce site risk.

TABLE OF RESULTS

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Tree Tag ID Number	Nomenclature & Tree Identification	Est Age	Est Tree Height	Est Canopy Spread	Estimated Life Expectancy (ELE)	Canopy Health	Canopy Structure	Trunk Diameter at 1.4m or Widest Point	Tree Protection Zone (TPZ) Radius (M)	Trunk Diameter Above Buttress	Structural Root Zone (SRZ) Radius (M)	Comments	Preliminary Recommendation
A00510	*Corymbia calophylla (Marri)*	Mature	16	11	40 + years	Reasonable	Good	0.540	6.48	0.660	2.78	Canopy noted to be slightly sparse, Deadwood noted within canopy (< 50mm dia.), Tree is considered to be a good specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00511	*Corymbia calophylla (Marri)*	Mature	18	15	15 - 40 years	Good	Reasonable	1.120	13.44	1.300	3.69	Damage noted to main stem, Deadwood noted within canopy (50 mm to 150 mm dia.), Main stem bifurcates between 500mm and 1 meter, Minor canopy suppression noted, Tree is considered to be a reasonable specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00512	*Corymbia terminalis (Desert Bloodwood)*	Early Mature	14	7	15 - 40 years	Good	Questionable	0.410	4.92	0.450	2.37	Bark Inclusions noted (major), Bark Inclusions noted with swelling noted, Canopy displays leggy structural form, Main stem bifurcates between 500mm and 1 meter, Minor canopy suppression noted, Tree displays questionable form, likely rootstock suckers from *C. ficifolia*, Tree identified for retention on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A	Further Arboricultural input and/or assessment required in regard to health, structural or other issues identified
A00513	*Corymbia terminalis (Desert Bloodwood)*	Early Mature	14	8	15 - 40 years	Good	Questionable	0.570	6.84	0.580	2.63	Bark Inclusions noted (major), Bark Inclusions noted with swelling noted, Canopy displays leggy structural form, Main stem bifurcates between 500mm and 1 meter, Minor canopy suppression noted, Tree displays questionable form, likely rootstock suckers from *C. ficifolia*, Tree identified for retention on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A	Further Arboricultural input and/or assessment required in regard to health, structural or other issues identified
A00514	*Acacia saligna (Golden wreath Wattle)*	Early Mature	3	4	5 - 15 years	Good	Reasonable	0.150	2.00	0.160	1.53	Main stem bifurcates between 500mm and 1 meter, Tree is considered to be a reasonable specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00515	*Eucalyptus marginata (Jarrah)*	Mature	12	7	15 - 40 years	Reasonable	Reasonable	0.290	3.48	0.330	2.08	Canopy noted to be chlorotic (Yellowing off), Canopy noted to be slightly sparse, Deadwood noted within canopy (< 50mm dia.), Minor canopy suppression noted	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00516	*Eucalyptus rudis (Flooded Gum)*	Mature	13	10	15 - 40 years	Reasonable	Reasonable	0.590	7.08	0.650	2.76	Damage noted to main stem, Deadwood noted within canopy (50 mm to 150 mm dia.), Main stem bifurcates between 2 meters and 3 meters, Rubbing & Crossing stems noted within canopy (50 mm to 150 mm dia.)	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00517	*Eucalyptus marginata (Jarrah)*	Semi-Mature	5	3	15 - 40 years	Good	Reasonable	0.180	2.16	0.200	1.68	Minor canopy suppression noted, Tree on lean (minor), in close proximity to tree A518	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00518	*Eucalyptus marginata (Jarrah)*	Semi-Mature	3	3	15 - 40 years	Reasonable	Good	0.120	2.00	0.150	1.50	Minor canopy suppression noted, Minor deadwood noted within canopy, in close proximity to tree A517	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00519	*Corymbia calophylla (Marri)*	Mature	13	8	<5 years	Poor	Questionable	0.440	N/A	0.440	N/A	Canopy indicates decline, Canopy noted to be sparse, Limited Estimated Life Expectancy, Main stem bifurcates between 500mm and 1 meter, tree Identified for removal as part of works	Tree identified for removal on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A
A00520	*Eucalyptus marginata (Jarrah)*	Mature	13	10	Dead	Dead	Questionable	0.420	N/A	0.450	N/A	Dead Tree – no chance of recovery, tree Identified for removal as part of works	Tree identified for removal on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A
A00521	*Corymbia calophylla (Marri)*	Mature	20	18	40 + years	Good	Questionable	0.940	N/A	0.990	N/A	Bark Inclusions noted with swelling noted, Main stem bifurcates between 2 meters and 3 meters, Tree is considered to be a reasonable specimen of the species, tree Identified for removal as part of works	Tree identified for removal on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A
A00522	*Corymbia calophylla (Marri)*	Mature	20	14	15 - 40 years	Reasonable	Reasonable	0.610	7.32	0.600	2.67	Canopy displays leggy structural form, Canopy indicates decline, Canopy noted to be sparse, Deadwood noted within canopy (< 50mm dia.), Minor canopy suppression noted	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00523	*Brachychiton populneus (Kurrajong)*	Early Mature	9	4	15 - 40 years	Good	Reasonable	0.400	4.80	0.400	2.25	Canopy displays leggy structural form, Main stem bifurcates at ground level	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00524	*Corymbia calophylla (Marri)*	Mature	11	8	40 + years	Good	Reasonable	0.420	5.04	0.450	2.37	Deadwood noted within canopy (< 50mm dia.), Minor canopy suppression noted, Prior branch failures noted within canopy (< 50mm dia.)	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00525	*Brachychiton acerifolius (Illawarra Flame Tree)*	Mature	10	6	40 + years	Good	Good	0.350	4.20	0.400	2.25	Tree is considered to be a good specimen of the species, Surface roots noted	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009

Tree Tag ID Number	Nomenclature & Tree Identification	Est Age	Est Tree Height	Est Canopy Spread	Estimated Life Expectancy (ELE)	Canopy Health	Canopy Structure	Trunk Diameter at 1.4m or Widest Point	Tree Protection Zone (TPZ) Radius (M)	Trunk Diameter Above Buttress	Structural Root Zone (SRZ) Radius (M)	Comments	Preliminary Recommendation
A00526	*Brachychiton acerifolius (Illawarra Flame Tree)*	Mature	10	6	40 + years	Good	Good	0.330	3.96	0.360	2.15	Minor canopy suppression noted, Tree is considered to be a reasonable specimen of the species, Surface roots noted	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00527	*Brachychiton acerifolius (Illawarra Flame Tree)*	Mature	10	7	40 + years	Good	Good	0.400	4.80	0.440	2.34	Tree is considered to be a good specimen of the species, Surface roots noted	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00528	*Corymbia maculata (Spotted Gum)*	Early Mature	11	8	40 + years	Good	Good	0.330	3.96	0.350	2.13	Deadwood noted within canopy (< 50mm dia.), Main stem bifurcates between 2 meters and 3 meters, Tree is considered to be a good specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00529	*Corymbia maculata (Spotted Gum)*	Early Mature	11	10	40 + years	Good	Good	0.390	4.68	0.450	2.37	Deadwood noted within canopy (< 50mm dia.), Main stem bifurcates between 2 meters and 3 meters, Tree is considered to be a good specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00530	*Corymbia maculata (Spotted Gum)*	Early Mature	9	7	40 + years	Reasonable	Good	0.290	3.48	0.320	2.05	Canopy noted to be slightly sparse, Deadwood noted within canopy (< 50mm dia.), Tree is considered to be a good specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00531	*Corymbia maculata (Spotted Gum)*	Early Mature	8	3	40 + years	Good	Questionable	0.150	2.00	0.200	1.68	Tree displays multi stemmed form, Sucker regrowth originating from stump - stand of x3, Tree identified for retention on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A	Further Arboricultural input and/or assessment required in regard to health, structural or other issues identified
A00532	*Corymbia maculata (Spotted Gum)*	Early Mature	12	10	15 - 40 years	Good	Questionable	0.410	4.92	0.450	2.37	Bark Inclusions noted with swelling noted, Main stem bifurcates between 1 meter and 2 meters, Tree identified for retention on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A	Further Arboricultural input and/or assessment required in regard to health, structural or other issues identified
A00533	*Corymbia maculata (Spotted Gum)*	Early Mature	13	11	40 + years	Good	Good	0.450	5.40	0.480	2.43	Deadwood noted within canopy (< 50mm dia.), Tree is considered to be a good specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00534	*Eucalyptus marginata (Jarrah)*	Early Mature	6	5	40 + years	Reasonable	Reasonable	0.370	4.44	0.370	2.18	Deadwood noted within canopy (50 mm to 150 mm dia.), Main stem bifurcates between 500mm and 1 meter, Minor canopy suppression noted	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00535	*Eucalyptus marginata (Jarrah)*	Early Mature	6	5	15 - 40 years	Reasonable	Reasonable	0.220	2.64	0.280	1.94	Deadwood noted within canopy (50 mm to 150 mm dia.), Evidence of Termite mud noted however no active termites observed, Minor canopy suppression noted	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00536	*Eucalyptus marginata (Jarrah)*	Early Mature	6	4	Dead	Dead	Questionable	0.300	N/A	0.250	N/A	Dead Tree – no chance of recovery, Main stem bifurcates between 500mm and 1 meter, Tree identified for retention on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A	Further Arboricultural input and/or assessment required in regard to health, structural or other issues identified
A00537	*Eucalyptus gomphocephala (Tuart)*	Mature	24	20	40 + years	Good	Good	1.250	15.00	2.200	4.61	Damage noted to main stem, Deadwood noted within canopy (50 mm to 150 mm dia.), Evidence of Termite mud noted however no active termites observed, Prior branch failures noted within canopy (50 mm to 150 mm dia.), Tree is considered to be a good specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00538	*Eucalyptus marginata (Jarrah)*	Semi-Mature	3	2	Dead	Dead	Questionable	0.150	N/A	0.180	N/A	Dead Tree – no chance of recovery, Tree identified for retention on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A	Further Arboricultural input and/or assessment required in regard to health, structural or other issues identified
A00539	*Brachychiton acerifolius (Illawarra Flame Tree)*	Early Mature	10	7	40 + years	Good	Good	0.280	3.36	0.320	2.05	Tree is considered to be a good specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00540	*Eucalyptus gomphocephala (Tuart)*	Early Mature	12	10	40 + years	Good	Reasonable	0.480	5.76	0.520	2.51	Canopy displays leggy structural form, Deadwood noted within canopy (50 mm to 150 mm dia.), Main stem bifurcates between 1 meter and 2 meters, Minor canopy suppression noted	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00541	*Eucalyptus marginata (Jarrah)*	Early Mature	5	4	Dead	Dead	Questionable	0.230	N/A	0.270	N/A	Dead Tree – no chance of recovery, Tree identified for retention on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A	Further Arboricultural input and/or assessment required in regard to health, structural or other issues identified

Tree Tag ID Number	Nomenclature & Tree Identification	Est Age	Est Tree Height	Est Canopy Spread	Estimated Life Expectancy (ELE)	Canopy Health	Canopy Structure	Trunk Diameter at 1.4m or Widest Point	Tree Protection Zone (TPZ) Radius (M)	Trunk Diameter Above Buttress	Structural Root Zone (SRZ) Radius (M)	Comments	Preliminary Recommendation
A00542	*Eucalyptus gomphocephala (Tuart)*	Mature	24	16	40 + years	Good	Good	1.090	13.08	1.100	3.44	Deadwood noted within canopy (50 mm to 150 mm dia.), Main stem bifurcates between 500mm and 1 meter, Minor canopy suppression noted, Tree is considered to be a good specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00543	*Brachychiton acerifolius (Illawarra Flame Tree)*	Early Mature	9	5	40 + years	Good	Good	0.240	2.88	0.320	2.05	Minor canopy suppression noted, Tree is considered to be a reasonable specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00544	*Eucalyptus gomphocephala (Tuart)*	Mature	16	16	40 + years	Good	Reasonable	0.730	8.76	0.750	2.93	Canopy displays leggy structural form, Main stem bifurcates between 1 meter and 2 meters, Minor canopy suppression noted, Tree is considered to be a reasonable specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00545	*Brachychiton acerifolius (Illawarra Flame Tree)*	Mature	11	7	40 + years	Good	Reasonable	0.350	4.20	0.400	2.25	Minor canopy suppression noted, Tree is considered to be a reasonable specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00546	*Eucalyptus marginata (Jarrah)*	Early Mature	10	5	Dead	Dead	Questionable	0.300	N/A	0.350	N/A	Dead Tree – no chance of recovery, tree Identified for removal as part of works	Tree identified for removal on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A
A00547	*Corymbia maculata (Spotted Gum)*	Early Mature	11	10	40 + years	Good	Good	0.350	4.20	0.400	2.25	Tree is considered to be a good specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00548	*Corymbia calophylla (Marri)*	Mature	22	18	15 - 40 years	Reasonable	Questionable	0.540	6.48	0.680	2.81	Deadwood noted within canopy (< 50mm dia.), Evidence of Termite mud noted however no active termites observed, Prior branch failures noted within canopy (50 mm to 150 mm dia.), Tree identified for retention on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A	Further Arboricultural input and/or assessment required in regard to health, structural or other issues identified
A00549	*Brachychiton acerifolius (Illawarra Flame Tree)*	Mature	10	10	40 + years	Good	Good	0.400	4.80	0.450	2.37	Tree appears to be a good specimen of the species, Tree located within school property (behind fencing - partial assessment undertaken only)	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00550	*Corymbia calophylla (Marri)*	Early Mature	9	8	<5 years	Questionable	Reasonable	0.220	2.64	0.250	1.85	Canopy indicates decline, Canopy noted to be chlorotic (Yellowing off), Canopy noted to be sparse, Limited Estimated Life Expectancy, Tree identified for retention on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A, , Tree located within school property (behind fencing - partial assessment undertaken only)	Further Arboricultural input and/or assessment required in regard to health, structural or other issues identified
A00551	*Callistemon 'Kings Park Special' (King's Park Special Bottlebrush)*	Mature	4	6	15 - 40 years	Good	Good	0.200	2.40	0.200	1.68	Tree is considered to be a good specimen of the species	Retain - Develop and implement 'Arboricultural Impact Assessment' (AIA) and 'Arboricultural Method Statement (AMS)' in accordance with AS4970 2009
A00552	*Eucalyptus gomphocephala (Tuart)*	Mature	22	20	40 + years	Good	Good	1.700	N/A	1.700	N/A	Deadwood noted within canopy (50 mm to 150 mm dia.), Main stem bifurcates between 500mm and 1 meter, Prior branch failures noted within canopy (150 mm to 300 mm dia.), Tree is considered to be a good specimen of the species, tree Identified for removal as part of works	Tree identified for removal on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A
A00553	*Eucalyptus marginata (Jarrah)*	Early Mature	8	7	5 - 15 years	Questionable	Questionable	0.400	N/A	0.400	N/A	Bark Inclusions noted with swelling noted, Canopy indicates decline, Limited Estimated Life Expectancy, Main stem bifurcates between 1 meter and 2 meters, Tree displays multi stemmed form, tree Identified for removal as part of works	Tree identified for removal on Porter Engineering Drawing 'Vegetation Removal Plan' 24-03-037/807A

APPENDIX C - TREE PROTECTION ZONE (TPZ) OVERVIEW

INTRODUCTION

- Tree protection measures in keeping with AS 4970 'Protection of Trees on development sites' 2009' must be incorporated into the proposed design and implemented under the guidance of a AQF Level 5 Project Arborist in order to achieve tree sensitive outcomes for the project.
- Reporting is to be in keeping with the stages identified within *AS 4970 'Protection of Trees on Development Sites'* 2009 and industry best practice.

TPZ BACKGROUND INFORMATION

- To determine a Tree Protection Zone (TPZ), the trunk Diameter measured at Breast Height (1.4 meters from ground level) is multiplied by x 12. This is to be measured as a radius from the centre of the main stem at ground level. As identified in AS 4970 *The TPZ is to not be less than 2 meters and no greater than 15 meter radius.*
- The calculated TPZ includes both the above ground and below ground parts of the tree.
- Any construction works proposed to occur within the TPZ will require Arboricultural assessment and approval from a AQF 5 Project Arborist prior to commencement.
- Modification of the design and/or construction methodologies may be necessary to allow the proposed design to proceed.
- Ongoing Arboricultural review of methodologies and works within the TPZs will be required by the Project Arborist for the duration of the development or construction works.

ESTABLISH TREE PROTECTION ZONES (TPZ) WITHIN THE SITE

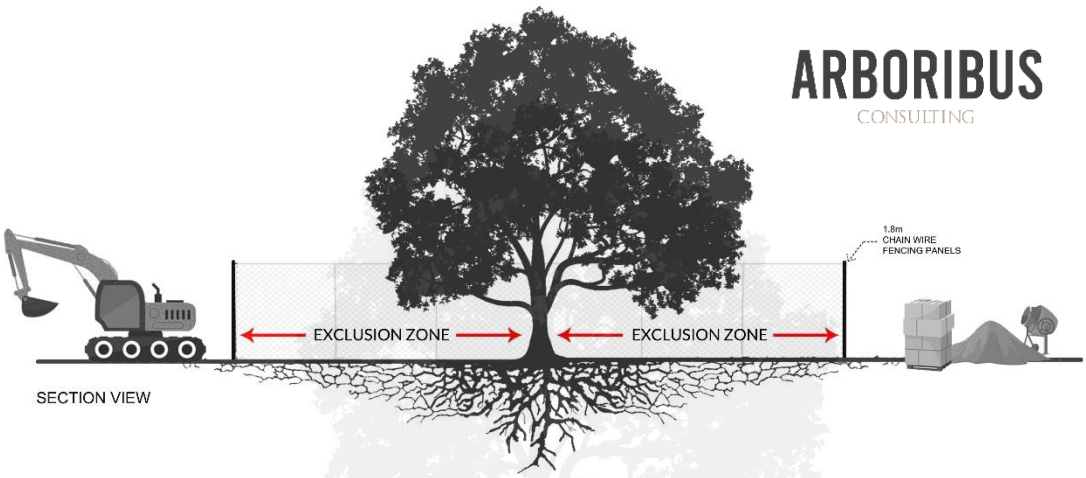
- TPZs are to be identified at their perimeter via 1.8-meter chain wire fencing panels (refer below figure for detail).
- This dedicated fencing is to have signage installed (refer below figure for detail) that identifies the TPZ as a protected area and that no access is permitted without prior approval from the Project Arborist.
- TPZ Fencing is to remain for the duration of the construction phase. Maintenance and general upkeep of the fencing is the responsibility of the nominated Contractor.
- Any alteration or modification of the fencing is to be approved prior by the Project Arborist and documented as part of ongoing tree preservation reporting for the site.

RESTRICTED ACTIVITIES WITHIN TPZS

- Any works without prior approval of the AQF Level 5 Project Arborist
- Unauthorised access into the fenced TPZ areas
- Unauthorised pruning of branches or roots.

- Parking, fuelling, tracking, or storage of vehicles or machinery of any kind
- Unauthorised mechanical excavation, trenching or unapproved works of any kind
- Unauthorised modification of existing grade (i.e., raising or lowering of soil levels)
- Storage of construction materials, fuels, or phytotoxic chemicals etc…
- Unauthorised placement of site facilities or waste disposal bins
- Unauthorised stockpiling of soil, spoil or any construction debris
- Cleaning or washing of tools, equipment and vehicles
- Disposal of liquid waste including paint and concrete and/or any washouts etc..

TPZ EXAMPLE

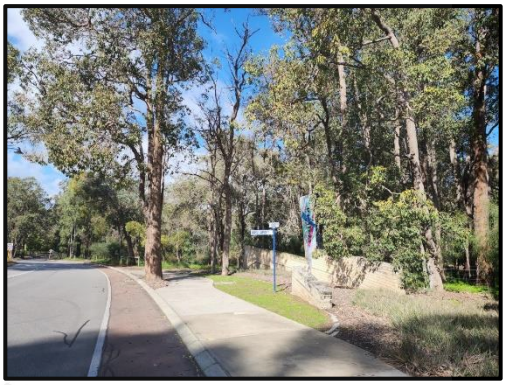


NO ACCESS OR WORKS SHALL BE PERMITTED WITHIN THE SPECIFIED TPZS WITHOUT PRIOR APPROVAL OF AND; UNDER THE SUPERVISION OF THE NOMINATED AQF LEVEL 5 ARBORIST.

APPENDIX D - GENERAL SITE IMAGES





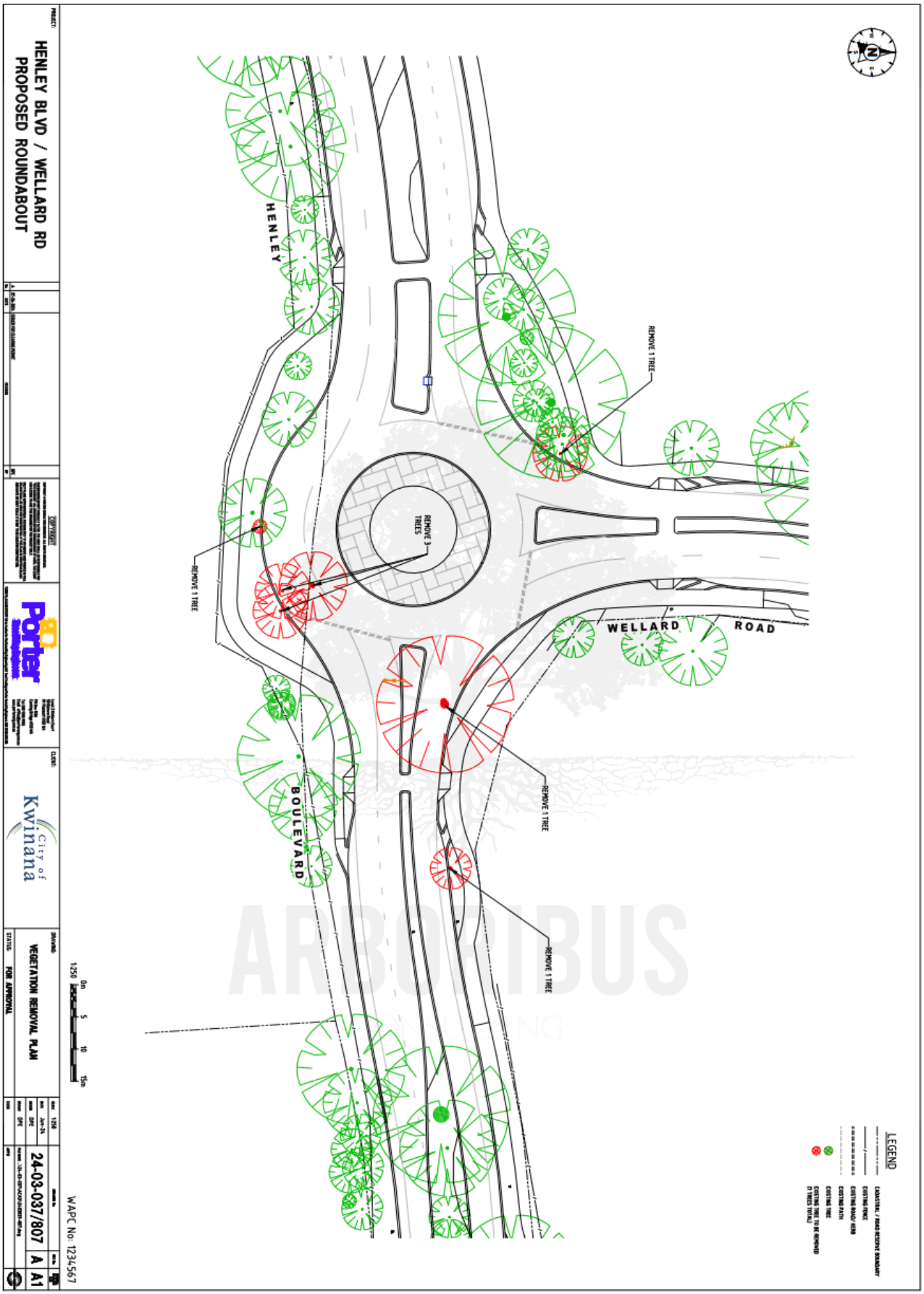



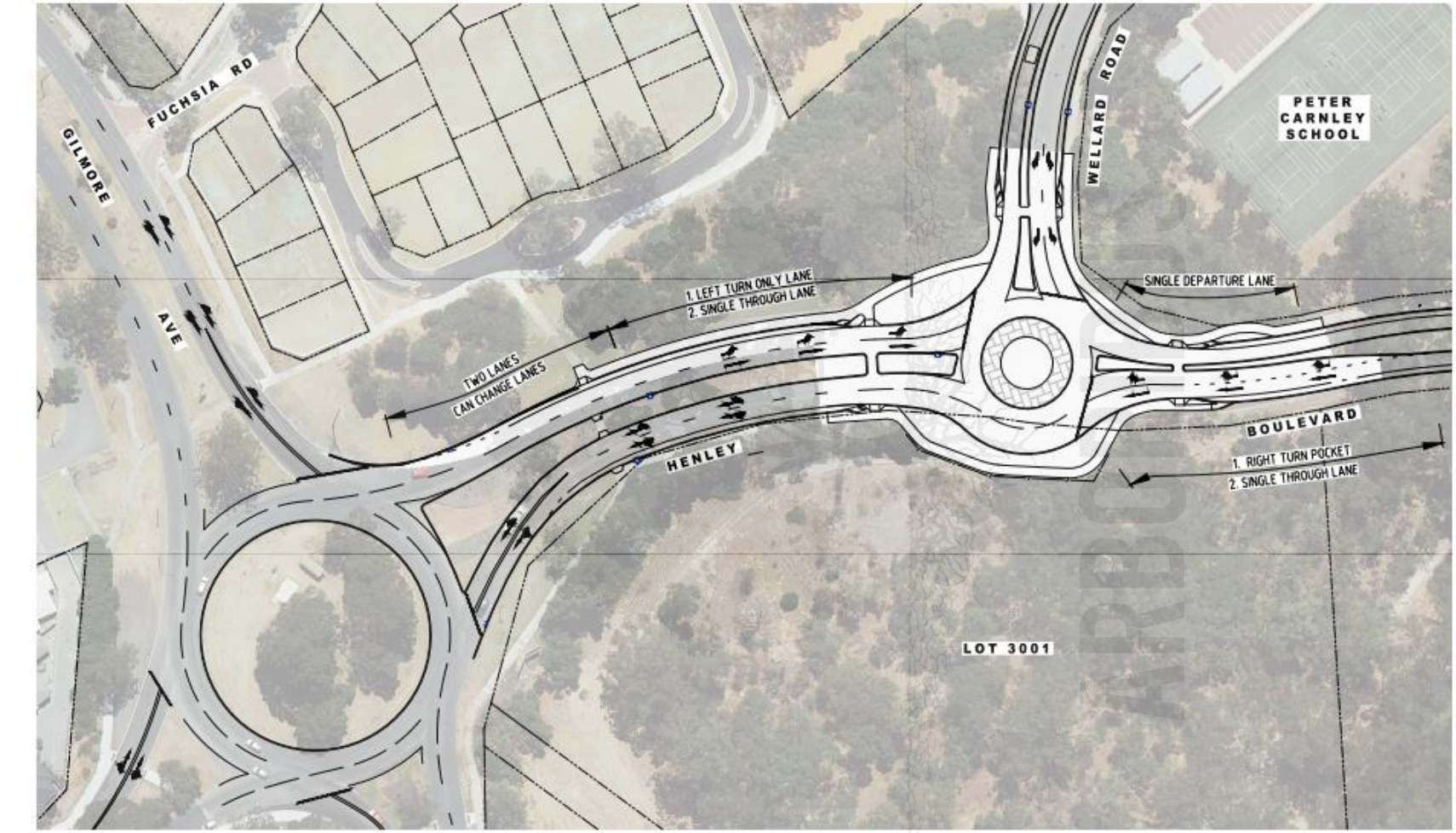







APPENDIX E – SUPPLIED DRAWINGS





PROJECT: HENLEY BLVD / WELLARD RD
PROPOSED ROUNDABOUT

CLIENT: City of Kwinana

DRAWING: ROUNDABOUT LAYOUT - OPTION 2
SINGLE WESTBOUND LANE &
DUAL EASTBOUND LANES

STATUS: CONCEPTUAL

24-03-037/802 A A1

If you have any queries or if I can be of further assistance, do not hesitate to contact me on 0406 396 778.

Regards,

Luke Lumbus

COMPANY AND CONSULTANTS DETAILS

Consultant Details:	Luke Lumbus – Consulting Arboriculturist & Director
Qualifications:	AQF 8 - Graduate Certificate in Arboriculture (Melbourne University) AQF 5 - Diploma in Arboriculture – (Challenger TAFE, Western Australia) International Society of Arboriculture (ISA) Certified Arborist - AU 0014A Quantified Tree Risk Assessment (QTRA) User Number 1935
Company Trading Name:	Arboribus Pty Ltd
Established:	October 2021
Australian Business Number:	82 653 281 782
Australian Company Number:	653 281 782
Contact Number:	0406 396 778
Email Address:	luke@arboribus.com.au
Website:	www.arboribus.com.au
Insurance:	Public Liability Insurance $20 Million (Hollard Insurance Australia) Professional Indemnity $5 Million (Dual Australia)

DISCLAIMER

- The Consultant is trained, qualified and competent in their field of expertise and will employ their knowledge, training, and skill to provide informed comments and recommendations. However, the Client acknowledges there may be latent conditions and factors the Consultant cannot reasonably determine from a visual inspection. Unless otherwise agreed with the Client and documented in the Report, the Consultant's inspection will be conducted visually and so will not determine any latent conditions hidden within the tree or below the ground level.

- The Client hereby acknowledges that the information contained in this report is intended to provide preliminary guidance and recommendations for how to manage and protect the tree(s) that are the subject of this report, however, given the nature of the subject matter, trees as living organisms are subjected to many varied and dynamic factors.
  This report does not attempt to predict or anticipate potential future failure(s) of the subject tree(s) and/or its above and/or below ground parts – failure of trees and their parts can be influenced by numerous factors including (but not be limited to):
    - Age
    - Health and Structural status of both above and/or below ground component(s)
    - Recent, historic or prolonged impacts to root(s)
    - Sudden or unapproved alterations to the trees growing environ(s)
    - Storm events, high winds, persistent heat and/or other severe climatic events
    - Standard and quality of previous works undertaken.

  This report and the advice within it cannot and shall not be construed as a guarantee the subject trees will not at some point deteriorate further and/or not survive.

- Where recommendations or advice have been provided, and the Client (or approved third party) does not adhere to such recommendations this shall be deemed to be an act or omission of the Client and the Client shall indemnify the Consultant for any damage, injury or loss that may occur as a result. It is the client's responsibility to organise any required re-inspections at the intervals specified.

- The Client warrants that it has disclosed all complete and accurate information in relation to the trees that are the subject of this report and the like and the Client hereby indemnifies and holds the Consultant harmless from any costs, losses or damage resulting in any way from matters not disclosed by the Client.

- The Client must acknowledge that it is their responsibility, prior to any work being conducted in connection with the Report, to obtain all necessary approvals in relation to carrying out the work that may be recommended by this report, including without limitation: approval from any local council, local or state government agency, or other authorised body, landlord, neighbour or any other persons or body corporate with legislative, regulatory or other interest over the trees or land that is the subject of this report.

- Arboribus shall not be required to attend court or provide evidence regarding this report unless predetermined provisions are agreed to between Arboribus and the Client, including additional payment of fees for such services.

- This report is confidential and for the exclusive use by the client for whom it was prepared. This report shall not be modified, reissued, printed, or distributed partially and/ or in its entirety without the formal permission provided by Arboribus Pty Ltd. Any unauthorised modification of this report invalidates the entire report.